HIGH-RISE SPECIAL REQUIREMENTS
(To Accompany Individual Occupancy Correction List)
1999 Standard Building Code and 2003 NFPA 101

I. PROCEDURES

1. See Business or Residential Occupancy Checklists.

II. GENERAL

1. A building having an occupiable story located more than 75 feet above the lowest level of fire department vehicle access must comply with SBC 412 and NFPA 101 11.8.

2. High-rise buildings must be protected throughout by an electrically supervised, approved, automatic sprinkler system. A sprinkler control valve and water flow device shall be provided for each floor. [NFPA 101 11.8.2.1 and SBC 412.1.1]

3. Provide a Class I standpipe per SBC 904.3, SBC 412.1.1, and NFPA 101 11.8.2.2.

4. In applicable seismic zones, the anchorage of the following mechanical and electrical equipment must be designed for a lateral force based on SBC 1607.6.4 and .5:

   A. Elevator drive and suspension systems.
   B. Stand-by power and lighting facilities.
   C. Fire pumps and other fire protection equipment.

5. Provide a letter from the local Fire Chief approving the location of the central control station. [SBC 412.4]

6. Provide a reflected ceiling plan showing lights, diffusers, sprinkler head, smoke detector, etc.

III. SITE

1. See Business or Residential Occupancy Checklists.

IV. CONSTRUCTION

*1. Building exceeds allowable area/number of stories/height for this type occupancy or construction and general area modification. [SBC Table 500 and 503.3]

2. Columns, floors, roofs, bearing walls, and girders must be protected in accordance with SBC Table 600 for Type I and II construction. See SBC 412.11(7) for one-hour rating reduction for partitions, columns, trusses, girders, beams, and floors.

3. A shaft that does not extend to or through the underside of the roof deck of the building must be enclosed at the top with construction of the same fire resistance as the top most floor protected by the shaft, but not less than the rating required for the shaft enclosure. [SBC 705.2.3.4.1] The rated shaft enclosure must be so constructed that it will provide the required two-hour fire rating from the center of the shaft to the adjacent space. [NFPA 101 8.3.4.2 and 8.6.5]

4. Elevator shafts and machine rooms must be enclosed with two-hour fire resistant construction. [SBC Table 705.1.2 , NFPA 101 8.3.4.2, and 8.6.5]

5. Show venting of elevator hoist ways four stories or more. [SBC 3003.6.1]

V. MEANS OF EGRESS

1. Stair enclosure must have two hour fire resistance rating. [SBC Table 705.1.2 and NFPA 101 8.6.5]

2. Required exit stairs must be constructed as smoke proof enclosures (SBC 1005.6) or pressurized in compliance with (SBC 412.11(5)).

3. Smoke proof enclosure must be by either natural ventilation (SBC 1005.6.8) or by mechanical ventilation (SBC 1005.6.9).

4. Doors from the building to the smoke proof enclosure's vestibule must be 1 ½-hour fire rated. [SBC 1005.6.8.1 and 1005.6.9.3]

5. Doors from the smoke proof enclosure's vestibule to the stairway must be 20-minute fire rated. [SBC 1005.6.8.1 and 1005.6.9.3]

6. Stairway doors, which can be locked, must be provided with automatic electrical unlocking from the central station. Telephones or other two-way communication systems must be provided at every fifth floor inside the stairwell. [SBC 412.8.1 and .2]

7. One stair must extend to the roof and must be marked at street and floor levels with a sign indicating that it continues to the roof. [SBC 1008]

8. Provide a sign at each floor level landing five feet above the landing that is visible when the door is opened or closed. The sign must indicate the floor level, the terminus of the top and bottom of the stair enclosure, and the identification of the stair. [NFPA 101 7.2.2.5.4]

9. All elevators must open into one hour enclosed elevator lobbies with 20-minute fire rated doors. [SBC 412.6.1 and Table 705.1.2]

10. At least one exit must be accessible from all rooms and enclosures without traversing through the elevator lobby. [SBC 412.6.2]

11. Exits stairs, guestrooms, janitor's closets, service rooms, laundry chutes, etc., cannot open into elevator lobbies. [SBC 412.6.2]

12. Controls must be provided to return all elevators to the main floor. This is to be initiated by ceiling mounted smoke detectors. [SBC 412.6.3]

13. One elevator cab (51 inches by 80 inches with a 42 inch clear opening) to accommodate a stretcher must be provided and identified. [SBC 3003.4]

VI. INTERIOR FINISH

1. No special requirements.

VII. MECHANICAL

1. A smoke detector must be provided in the main return and exhaust air plenum of each HVAC system serving more than one story and located in a serviceable area downstream of the last duct inlet. [SBC 412.2.1(3)]

2. A smoke detector must be provided at each connection to a vertical duct or riser serving two or more stories from return air ducts or plenums or heating, ventilating and air conditioning systems. [SBC 412.2.1(4)]

3. The smoke detectors required by SBC 412.2.1 must place into operation all equipment necessary to prevent the recirculation of smoke.

4. Natural or mechanical ventilation for the removal of products of combustion must be provided in every story and must consist of one of the options given in SBC 412.5.

5. Fire dampers may be omitted except in the locations outlined in SBC 412.11(4).

6. Stair pressurization systems must be independent of other building ventilation systems. [SBC 1005.6.9.1]

7. Equipment and ductwork for stair pressurization must be located in accordance with NFPA 101 7.2.3.9.2.

8. Flexible air-duct connectors must be installed in accordance with manufacturer's instructions (maximum 14 feet in length and not permitted to pass through any wall, shafts, etc., that requires one hour fire resistance. [SMC 604.4]

9. If required to have a smoke management system for atria, malls or other large areas, provide a listed exhaust fan to operate at the design conditions of smoke and fire. Show model of smoke exhaust system that the design will keep the smoke layer interface above the highest unprotected opening OR 72 inches above the highest floor level or exit access open onto the atrium per 2003 NFPA 101 8.6.7. The system must meet UL category UUKL. Use NFPA 2002 92B, Guide for Smoke Management Systems in Malls, Atria, and Large Areas, 2000 NFPA 92A, Recommended Practice for Smoke-Control Systems, for mechanical smoke control between fire-compartmented building spaces separated by smoke barriers and 2002 NFPA 204, Guide for Smoke and Heat Venting, for gravity venting. This guide is not intended to apply to warehouses, manufacturing facilities, or other similar spaces.

VIII. FIRE SUPPRESSION

1. Provide shutoff valves and water flow devices at the riser connection on each floor. [SBC 412.10.2] Combined sprinkler/standpipe systems must have an individual control valve and check valve at each sprinkler connection. [NFPA 14 6.2.5.1]

2. Provide a secondary on-site supply of water equal to the hydraulically calculated sprinkler demand plus 100 GPM for the standpipe system where the effective peak velocity related acceleration, A_v, in accordance with 1607.1, is equal to or greater than 0.20. This supply shall have a duration of 30 minutes but not exceed 10,000 gallons. [SBC 412.10.3]

3. Automatic fire sprinklers may be omitted in the spaces or areas in telecommunication buildings used for telecommunication equipment, associated electrical power distribution equipment (batteries and stand-by engines) if two-hour enclosed. [SBC 412.10.4(3) and NFPA 13 4.13.10 Exception]

4. All piping from the "point of service" including underground used for sprinkler or standpipe system must be installed by a Tennessee registered sprinkler contractor. [Rule 0780-2-7-.08] **Show location of "point of service" for the underground sprinkler piping on the site plan and provide a note stating that the installation must be performed by a Tennessee registered sprinkler contractor.** If there is an existing sprinkler system in the building, a Tennessee registered sprinkler contractor must inspect, test, and provide a letter of acceptance or new inspection report for the existing system showing no deficiencies.

IX. ELECTRICAL

1. Provide a permanently installed standby power generation system conforming to 2002 NFPA 70. [SBC 412.7.1.1]

2. The following standby power loads must be connected to the emergency generator and must be operational within 60 seconds per (SBC 412.7.2):

   A. Rescue elevator required by (SBC 3003.4).
   B. Emergency mechanical air handling systems (i.e., smoke proof enclosures and smoke management systems). [NFPA 101 11.8.4.2 and 8.5]
   C. Fire pumps.

3. The following central control station equipment must be provided with standby power in accordance with NFPA 101 11.8.4.2 and 11.8.5:

   A. Fire department two-way telephone communication system service panels and controls.
   B. Fire detection and fire alarm annunciation panels.
   C. Elevator floor location and operation annunciators.
   D. Sprinkler valve and water flow annunciators.
   E. Indicators for emergency generator status.
   F. Controls for any automatic stair door unlocking system.
   G. Telephone for fire department use with controlled access to the public telephone system.
   H. Voice fire alarm system panels and controls.
   I. Fire pump status indicators.

4. Emergency power must be available within 10 seconds to operate the following (SBC 412.7.3):

   A. Voice alarm systems.
   B. Voice communication systems.
   C. Fire alarm systems.
   D. Fire detection systems.
   E. Elevator car lighting.
   F. Escape route lighting.
   G. Exit sign illumination.

5. Nonmetallic-sheathed cable (types NM and NMC) must not be used in fire resistive components of a high-rise building (Type I or II construction). [SBC 706]

6. A voice alarm system, public address system, and fire department communication system must be provided. [SBC 412.3.1] These systems may be combined. [SBC 412.3.4]

7. The voice alarm system must have the following feature:

   A. Provide a predetermined message to the area where the alarm originated, actuated by a smoke detector, sprinkler head, water flow device, or manual fire alarm. The message must provide applicable information and directions to occupants. [SBC 412.3.2.1 and 412.3.2.2]

8. The fire department two-way communication system must operate between the central control station and every elevator, elevator lobby, exit stairway, and exit access corridor. In buildings equipped with a fire pump(s), a telephone station or jack shall be provided in each fire pump room. [SBC 412.3.3 and 2002 NFPA 72 6.9.9.10]

9. At least one approved smoke detector shall be installed in every mechanical equipment, electrical, transformer, telephone equipment, elevator machine, and elevator lobby. [SBC 412.2.1]

10. A fire command station shall contain sprinkler valve, water flow detector, and fire pump display panel. [SBC 412.4.3(7)]

11. A fire command station shall contain generator supervision devices, manual start, and transfer features. [SBC 412.4.3(10)]

12. Manual fire alarm boxes shall be provided. [SBC 412.9.5]